

Nov. 10, 1959

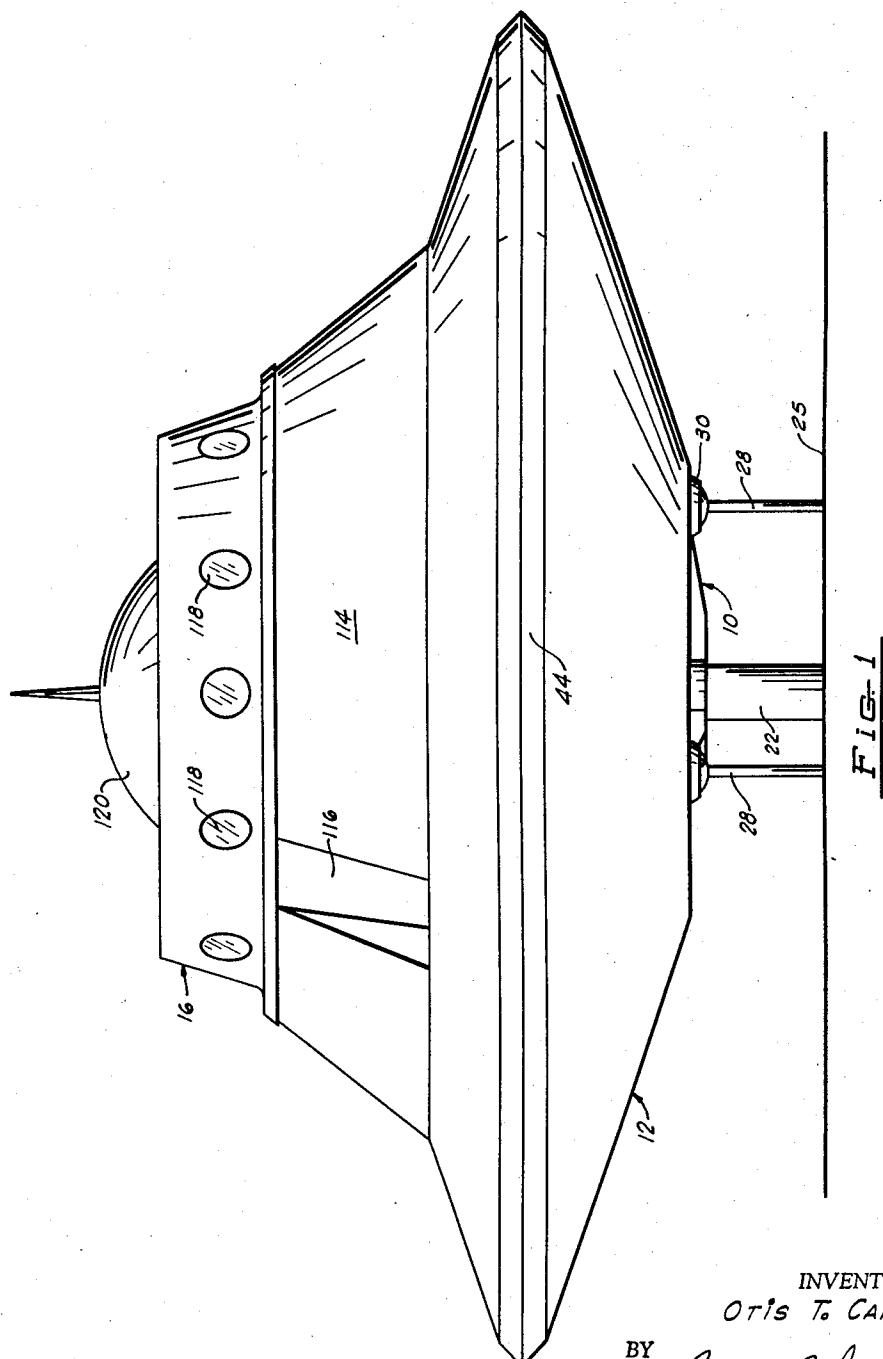
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2,912,244

AMUSEMENT DEVICE

Filed Jan. 22, 1959

5 Sheets-Sheet 1



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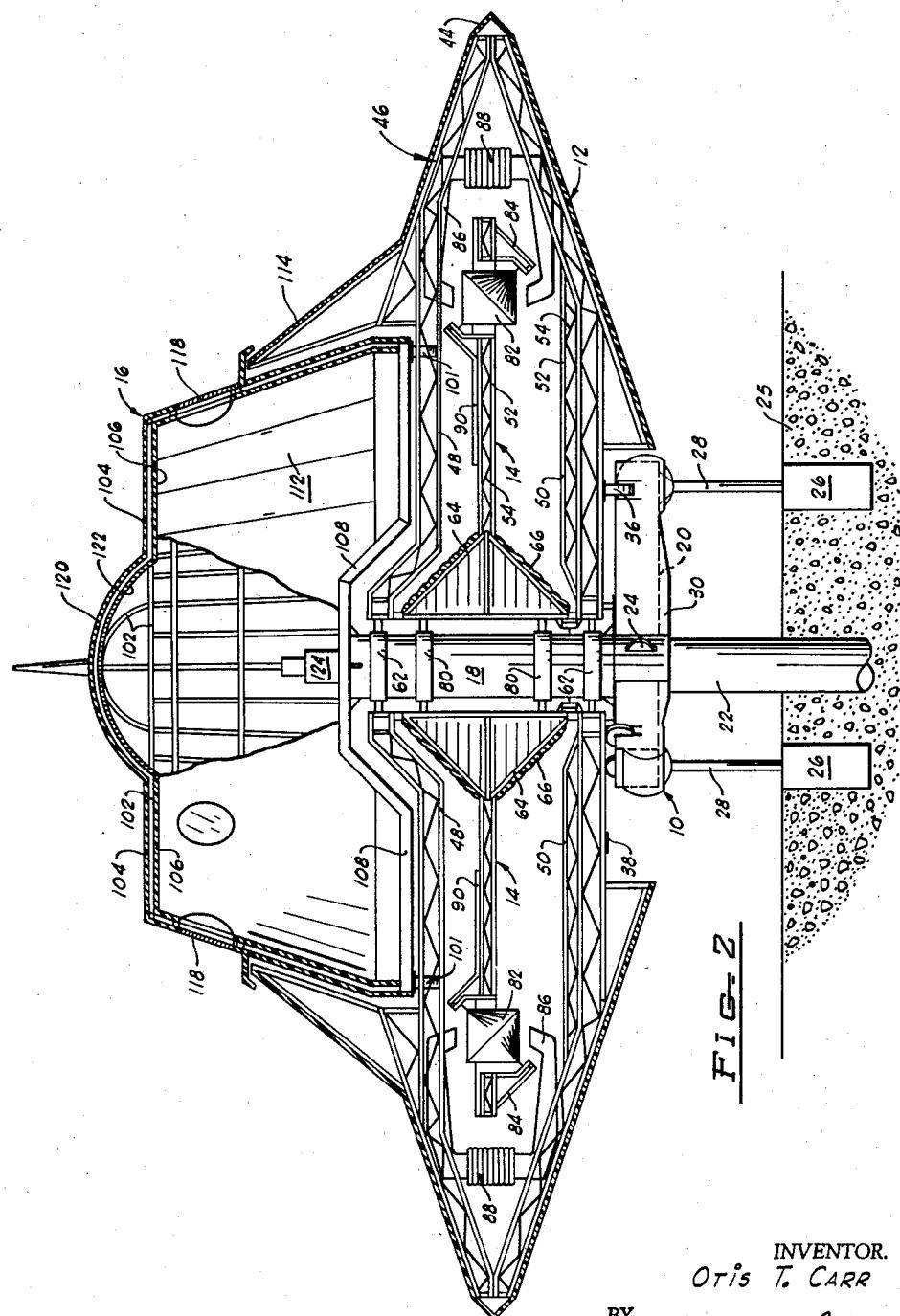
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## AMUSEMENT DEVICE

Filed Jan. 22, 1959

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AMUSEMENT DEVICE

Filed Jan. 22, 1959

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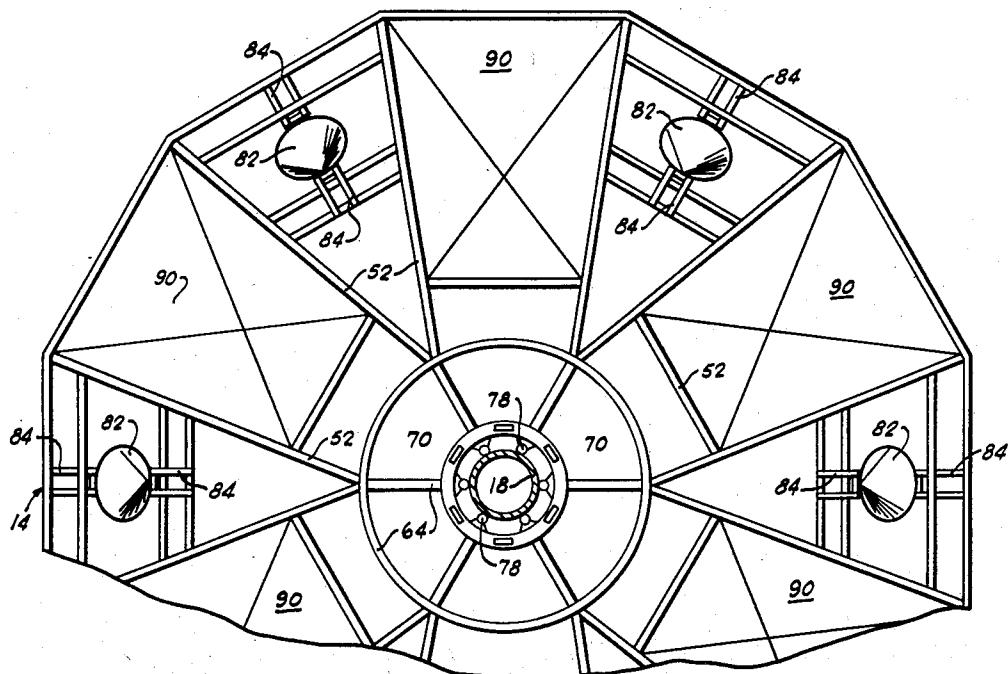


FIG. 5

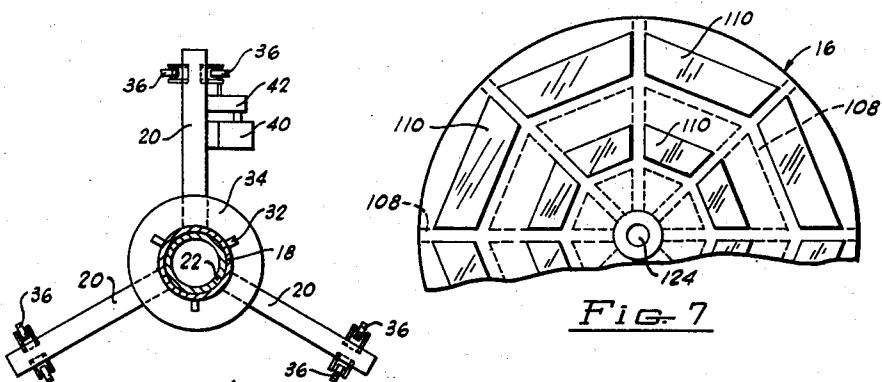


FIG. 3

FIG. 7

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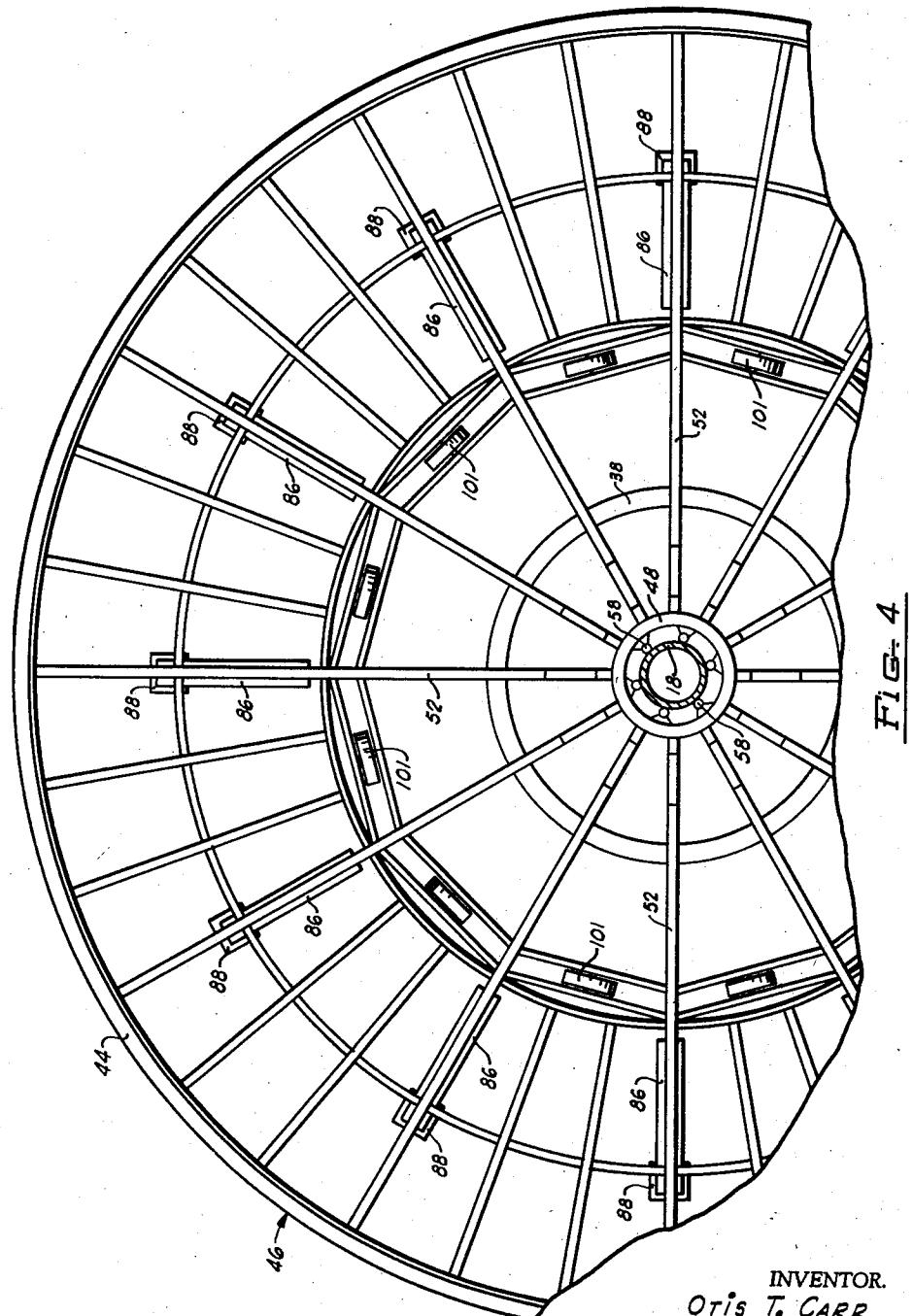


FIG. 4

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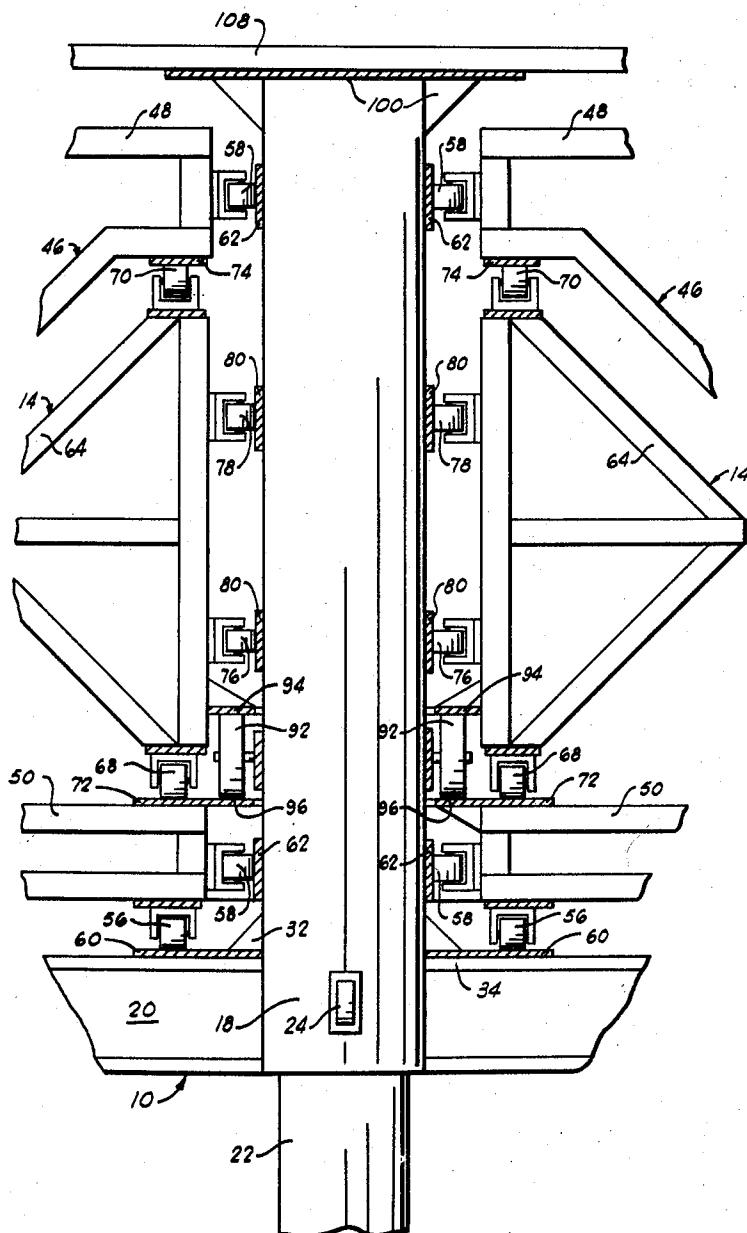


FIG. 6

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# United States Patent Office

2,912,244

Patented Nov. 10, 1959

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2,912,244

## AMUSEMENT DEVICE

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Application January 22, 1959, Serial No. 788,392

9 Claims. (Cl. 272—18)

This invention relates generally to improvements in amusement devices, and more particularly, to an improved amusement device of the type wherein the passengers will receive the impression of riding in an interplanetary space craft.

The present invention contemplates a novel amusement device having the overall configuration of a space craft and being formed in various sections, with portions of the sections being rotated in opposite directions to give the impression of movement to the passengers. It is also contemplated to move the craft up and down and display an animated movie of heavenly bodies above the passengers to give the passengers an impression of leaving the earth and approaching a distant planet or the like. This invention further contemplates the provision of electro-magnets, cones and the like carried by the oppositely rotating sections of the device, and windows through which the passengers may view these simulated objects to give the impression to the passengers that they are viewing the inner workings of an interplanetary space craft during flight of the craft. Finally, this invention contemplates the construction of the various portions of an amusement device simulating an interplanetary space craft in such a manner that the device may be easily transported in sections from one location to another and reassembled in a minimum of time.

An important object of this invention is to provide an amusement device wherein a passenger in the device receives the impression of flying in an interplanetary space craft.

Another object of this invention is to provide an amusement device having a general configuration of an interplanetary space craft and having oppositely rotating sections simulating the movement of various portions of such a space craft during flight.

A further object of this invention is to provide an amusement device simulating an interplanetary space craft and having a passenger cabin wherein the passengers may view various moving portions of the device to impress the passengers with flight in a space craft.

Another object of this invention is to provide an amusement device simulating an interplanetary space craft wherein the passengers will be physically moved a very minor distance and yet will receive the impression of flying in a space craft.

A further object of this invention is to provide a portable amusement device simulating an interplanetary space craft which may be easily disassembled and transported from one location to another.

A still further object of this invention is to provide an amusement device which is simple in construction, may be economically manufactured, and which will have a long service life.

Other objects and advantages of the invention will be evident from the following detailed description, when read in conjunction with the accompanying drawings which illustrate my invention.

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In the drawings:

Figure 1 is an elevational view of an amusement device constructed in accordance with this invention.

Figure 2 is a vertical sectional view through the device illustrated in Fig. 1.

Figure 3 is a plan view of the landing gear for the amusement device, with the housing around the legs of the landing gear removed.

Figure 4 is a plan view of the supporting structure or frame work for the outer rotating shell of the amusement device shown in Figs. 1 and 2.

Figure 5 is a plan view of the central rotating assembly which rotates within the outer shell frame illustrated in Figs. 2 and 4.

Figure 6 is an enlarged sectional view illustrating the support and the drive between the inner rotating assembly and the outer rotating assembly.

Figure 7 is a plan view of the floor portion of the passenger cabin.

Referring to the drawings in detail, and particularly Figs. 1 and 2, a preferred embodiment of the present invention comprises, generally speaking, a supporting structure and landing gear 10, an outer rotating shell 12, an inner rotating assembly 14 (shown only in Fig. 2) and a passenger cabin 16 extending downwardly into the upper end portion of the outer shell 12. The landing gear and supporting mechanism 10 comprises a vertically extending tubular member 18 around which the outer shell 12 and inner rotating assembly 14 are journaled, as will be hereinafter set forth, and a plurality of legs 20 extending radially outward in circumferentially spaced relation from the lower end of the tubular member 18. The tubular member 18 is telescoped over a supporting stanchion 22 which may be in the form of a pipe, and the tubular member 18 is slidably supported on the stanchion 22 by suitable wheels or rollers 24 to facilitate vertical movement of the member 18 on the stanchion 22, as will be hereinafter set forth. The stanchion 22 is preferably supported in a suitable foundation 25 to provide adequate strength for the amusement device.

A suitable jack 26, preferably a hydraulic jack, is anchored in the foundation 25 underneath the outer end portion of each of the landing gear legs 20 and is provided with an extension 28 extending upwardly into connection with the respective leg 20. The jacks 26 are operated simultaneously to raise and lower the landing gear and supporting structure 10, as will be described. A suitable shaped housing 30 is preferably secured around each of the landing gear legs 20 to provide a streamlined appearance. It may be noted that each of the legs 20 is preferably constructed out of a structurally strong member, such as an I-beam, and is secured to the lower end portion of the tubular member 18 by suitable braces 32 and plates 34 to assure a rigid and adequate connection of the legs 20 to the tubular member 18.

A pair of rollers 36 (see also Fig. 3) are rotatably supported adjacent the outer end portion of each leg 20 of the landing gear and are arranged to engage a circular track 38 (Figs. 2 and 4) for partially supporting the outer shell 12 and inner rotating assembly 14 as will be described. Also, a suitable drive motor 40 (Fig. 3) is mounted on one of the legs 20 of the landing gear and is connected through a suitable gear box 42 to one of the rollers 36 to rotate the outer shell 12 with respect to the landing gear and supporting structure 10. The roller 36 connected to the drive motor 40 may be suitably chained (not shown) to its companion roller 36 to assure an adequate drive connection between the drive motor 40 and the circular track 38.

The shell 12 (Fig. 2) is tubular in configuration, with the diameter of the central portion thereof substantially

larger than the diameter at the opposite ends thereof, and is supported in an upright position to give the general appearance of two saucers placed face-to-face. The outer edge portion 44 of the shell 12 is preferably formed of partially transparent material, such as Plexiglas, and is illuminated from within (not shown) to provide a band of light around the central portion of the shell 12. The remainder of the shell 12 is formed of any desired opaque and relatively strong material, such as aluminum-laminated Masonite sheets.

The shell 12 is supported on a frame generally designated by reference character 46 and illustrated in Figs. 2 and 4. The frame 46 is circular in plan, as viewed in Fig. 4, and is substantially U-shaped in cross-section (as shown in Fig. 2) to provide an upper horizontally extending portion 48 and a lower horizontally extending portion 50 which extend from adjacent the supporting member 18 outwardly to the central portion of the shell 12. The frame 46 may be easily formed with industrial square steel tubing 52 formed into a truss with bracing of steel rods 54. With this construction, the frame 46 may be easily fabricated in sections for convenient assembly, or the entire frame 46 may be lifted off of the supporting member 18 and transported to another location.

Support of the frame 46 and the outer shell 12 is provided by the track 38 (previously mentioned) which is secured on the lower face of the lower horizontally extending portion 50 of the frame 46 in a position to engage the rollers 36 carried by the landing gear legs 20. Additional support for the frame 46 is provided by rollers 56 (Fig. 6) secured around the inner edge of the lower portion 50 of the frame, and rollers 58 secured around the inner periphery of both portions 48 and 50 of the frame. The rollers 56 are arranged in circumferentially spaced relation around the inner periphery of the frame 46 and engage a circular track 60 supported by the legs 20 of the landing gear. The track 60 may be an extension of the upper plate 34 shown in Fig. 3. The rollers 58 engage tracks 62 extending circumferentially around the supporting member 18 to accommodate any radial forces imposed on the frame 46. It will be understood that any desired number of the rollers 58 may be provided around the inner periphery of the frame 46 to provide the necessary support. It will thus be apparent that when the drive motor 40 is placed in operation, the rollers or wheels 36 operated by the motor 40 will engage the track 38 to rotate the shell 12 in one direction around the longitudinal axis of the supporting member 18. The rollers 56 will engage the track 60, and the rollers 58 will engage the tracks 62 during such rotation of the outer shell 12 and frame 46.

The inner rotating assembly 14 is generally annular-shaped, as illustrated in Fig. 5, for movement around the supporting member 18 between the upper and lower horizontally extending portions 48 and 50 of the frame 46. The assembly 14 is also preferably constructed as a frame out of square steel tubing 52 formed into a truss with steel rods 54 for bracing, and is provided with a double conically-shaped framework 64 adjacent the supporting member 18. The framework 64 is provided to support a covering material 66 of any suitable type, such as laminated metal or plastic, to simulate a solid member in the central portion of the amusement device, which in turn simulates a portion of a space craft, such as the power unit for the craft. The covering material 66 may be corrugated if desired. The framework 64, as illustrated in Fig. 6, is also provided to support the rotating assembly 14 on the supporting member 18 and the frame 46. A plurality of rollers 68 are provided around the lower face of the framework 64, and a plurality of rollers 70 are provided around the upper face of the framework 64 to engage circular tracks 72 and 74, re-

spectively, which are mounted on the frame 46. The rollers in each set of rollers 68 and 70 are provided in circumferentially spaced relation around the inner periphery of the rotating assembly 14 to accommodate vertical thrusts imposed on the rotating assembly 14. Additional rollers 76 and 78 are provided around the inner periphery of the framework 64 to engage tracks 80 extending circumferentially around the supporting member 18 to accommodate radial thrusts imposed on the central rotating assembly 14. It will be apparent that any desired number of rollers 76 and 78 may be provided around the inner periphery of the framework 64 to adequately support the rotating assembly 14.

I also prefer to support a plurality of conically-shaped members 82 in the outer edge portion of the central rotating assembly 14. Each conically-shaped member 82 may be easily formed out of a suitable sheet material, such as laminated aluminum or plastic, and is supported at its opposite ends by suitable trunnions 84 to extend through the truss comprising the frame of the central rotating assembly 14. The conically-shaped members 82 are preferably provided in circumferentially spaced relation around the assembly 14, as illustrated in Fig. 5, and are positioned to move through simulated electro-magnets 86 supported around the frame 46, as illustrated in Figs. 2 and 4. Each simulated electro-magnet 86 may be formed in horse shoe shape out of any suitable sheet material, and is provided with tubing or the like 88 around a portion thereof to simulate the winding of an electro-magnet. I further prefer to secure a plurality of plates 90 in spaced relation around the upper face of the rotating assembly 14 to simulate capacitor plates in a space craft. The plates 90 may be formed out of any suitable material, such as aluminum laminated Masonite, to provide a striking appearance.

The inner rotating assembly 14 is driven by a friction or dead wheel 92 pivotally supported on the tubular member 18, as illustrated in Fig. 6, engaging circular plate 94 and 96 carried by the inner rotating assembly 14 and the frame 46, respectively. The plates 94 and 96 are arranged in vertically spaced relation with sufficient distance therebetween to frictionally engage opposite portions of the wheel 92. It will therefore be apparent that when the frame 46 is turned in one direction, the plate 96 will engage the periphery of the wheel 92 to drive the wheel 92 and in turn drive the central rotating assembly 14 in an opposite direction by frictional engagement of the wheel 92 with the plate 94. Therefore, the various conically-shaped members 82 will be moved successively through the simulated electro-magnets 86 and give the appearance of the generation of electrical energy.

The cabin 16 is supported on the upper end of the tubular supporting member 18 and is rigidly secured to the member 18 by bracing 100 to move with the supporting member 18 and to be prevented from rotating with the shell 12 or rotating assembly 14. Additional support is provided by a plurality of rollers 101 carried by the frame 46 engaging a complementary track on the bottom 60 of the cabin. The cabin 16 is constructed out of a suitable framework 102 covered by suitable sheet material 104, such as aluminum laminated with Masonite, on the outer surface of the framework and any other suitable material 106, such as Masonite, around the inner surface of the framework. It will be understood that substantially strong members 108 must be provided in the floor of the cabin 16 to adequately support passengers in the cabin. As illustrated in Fig. 7, a plurality of transparent windows 110 are provided adjacent the outer and inner peripheries of the floor of the cabin 16, through which passengers in the cabin may adequately view the inner rotating assembly 14 and the frame 46.

Passengers may either stand or sit in the cabin 16 and may gain entrance and exit from the cabin through suitable doors 112 as illustrated in Fig. 2. It will also be

noted that the upper edge portion 114 of the outer shell 12 is extended upwardly to overlap the lower end portion of the cabin 16. A portion of the upper edge 114 of the shell 12 is removed, as at 116 in Fig. 1, such that passengers may enter the cabin 16 through the doors 112. Simulated port holes 118 are provided around the upper edge portion of the cabin 16 to further simulate an interplanetary space craft. It will be noted, however, that the port holes 118 are preferably covered with an opaque material on the inside of the cabin 16 to prevent the passengers from seeing familiar objects outside of the cabin 16.

A dome 120 is preferably provided in the top central portion of the cabin 16 and the under surface thereof is covered with a suitable material 122, such as cloth or the like, which will display a movie scene. A projector 124 is suitably mounted in the central portion of the floor of the cabin 16 to project an animated movie onto the screen 122 during operation of the amusement device. The movie displayed by the projector 124 is preferably an animated movie of heavenly bodies made in such a manner that the heavenly bodies displayed on the screen 122 will appear to come closer to and move away from the passengers during operation of the amusement device to give the impression of interplanetary flight.

In summarizing the operation of the preferred amusement device, the passengers are directed into the cabin 16 through the opening 116 in the upper edge portion of the shell 12 and through the doors 112. The doors 112 are then securely fastened in closed positions and the passengers are thereafter prevented from viewing any object outside of the amusement device during the simulated flight. The drive motor 40 is then placed in operation to rotate the shell 12 and frame 46 in one direction, while the friction wheel 92 drives the inner rotating assembly 14 in an opposite direction. Passengers in the cabin 16 will then view the movement of the inner rotating assembly 14 and the frame 46 through the windows 110 to receive the impression of watching the inner workings of a space craft. Also, suitable lighting effects (not shown) are preferably provided in the shell 12 to illuminate the moving parts. Simultaneously with rotation of the shell 12 and the inner rotating assembly 14, the jacks 26 are actuated to raise the supporting member 18 on the stanchion 22. This upward movement of the supporting member 18 will be rather minor, but will be sufficient to give the sensation of rising to the passengers in the closed cabin 16. It will be observed that when the supporting member 18 is raised, the shell 12 and inner rotating assembly 14 are simultaneously raised to retain the vertical relationship between the cabin 16 and the remainder of the apparatus viewed by passengers in the cabin. Also, simultaneously with rotation of the shell 12 and rotating assembly 14, the movie is displayed by the projector 124 on the screen 122 on the dome of the cabin to give the passengers the impression of approaching one or more heavenly bodies. The jacks 26 are then operated in the opposite direction to lower the cabin 16 and the movie projected by the projector 124 may then provide an impression on the screen 122 that the passengers are returning to earth.

From the foregoing it will be apparent that the present invention provides an amusement device which will give the impression and sensation to patrons or passengers of the device that they are taking an interplanetary flight. The device includes counter-rotating sections simulating the inner workings of a space craft and these moving sections may be easily viewed by passengers in the device. Also, the passengers are slightly raised during operation of the device to simulate flight from the earth and a movie is simultaneously displayed to give the impression of approaching a heavenly body. It will also be apparent that the construction of the amusement device is such that the device may be easily disassembled and moved from one location to another. It will further

be apparent that the present amusement device is simple in construction, may be economically manufactured and will have a long service life.

Changes may be made in the combination and arrangement of parts or elements as heretofore set forth in the specification and shown in the drawings, it being understood that changes may be made in the embodiment disclosed without departing from the spirit and scope of the invention as defined in the following claims.

I claim:

1. In an amusement device simulating a space ride, the combination of: an outer tubular shell, the diameter of the central portion of said outer shell being substantially larger than the diameter at the opposite ends thereof, means for supporting the outer shell in an upright position with the largest diameter thereof extending horizontally, means for rotating the outer shell about its longitudinal axis, a plurality of simulated electro-magnets carried in circumferentially spaced relation in the outer shell, an annular-shaped frame rotatably supported concentrically in the outer shell, means for simultaneously turning said frame in a direction opposite to the rotation of the outer shell, conically-shaped members carried by said frame in positions for movement through the simulated electro-magnets in the outer shell, a passenger cabin having a floor therein, means for non-rotatably supporting the cabin above the outer shell with the floor of the cabin positioned within the upper end portion of the outer shell, and transparent windows in the floor of the cabin for viewing movement of the outer shell and said frame from the interior of the cabin.
2. An amusement device as defined in claim 1 wherein said means for supporting said outer shell comprises a tubular support member extending downwardly from the cabin through the outer shell and said frame, a base portion on the lower end of said tubular support member simulating a landing gear, cooperating rollers and tracks supporting the outer shell on the base portion, and means for raising and lowering said base portion during rotation of the outer shell and said frame.
3. In an amusement device simulating a space ride, the combination of: a vertically extending supporting member, a passenger cabin mounted on the upper end of the supporting member and having transparent windows in the floor thereof, an outer shell extending downwardly and outwardly from the lower end portion of the cabin and then inwardly and downwardly toward the supporting member, a first frame extending radially inward from the outer shell and having a generally U-shaped cross section with upper and lower horizontally extending portions, means rotatably supporting said first frame on the supporting member, a second frame rotatably supported on the supporting member for rotary movement horizontally between the upper and lower horizontally extending portions of the first frame, and means for rotating said first and second frames in opposite directions to simulate movement of the inner workings of a space craft as viewed from the cabin.

60 4. An amusement device as defined in claim 3 characterized further to include at least one jack connected to said supporting member for raising and lowering the cabin and first and second frames during rotary movement of said frames.

65 5. An amusement device as defined in claim 3 wherein said supporting member is a tube, and characterized further to include a fixed stanchion telescoped into the supporting member for holding the supporting member vertical, legs extending outwardly in circumferentially spaced relation from the supporting member below the lower horizontal portion of the first frame simulating a landing gear for the device, rollers carried by each leg, a circular track on the lower horizontal portion of the first frame arranged to ride on said rollers during rotation of the first frame, and a jack connected to each leg of the

landing gear for raising and lowering the supporting member on the stanchion during rotation of said frames.

6. An amusement device as defined in claim 5 wherein said means for rotatably supporting the first frame on the supporting member includes a track around the supporting member opposite each of the upper and lower horizontal portions of the first frame, and a plurality of rollers carried by each of the upper and lower horizontal portions of the first frame in circumferentially spaced relation in positions to engage the respective track.

7. An amusement device as defined in claim 5 wherein said means for rotatably supporting the second frame on the supporting member comprises a pair of vertically spaced tracks around the supporting member, two sets of circumferentially spaced rollers carried by the second frame in positions to engage said tracks on the supporting member, circular tracks on the upper and lower horizontal portions of the first frame, and circumferentially spaced rollers on the upper and lower faces of the second frame for engaging the last-mentioned circular tracks.

8. An amusement device as defined in claim 3 wherein

5 said means for rotating said frames in opposite directions comprises concentric annular plates secured around the first and second frames in vertically spaced relation adjacent the supporting member, a friction wheel carried by the supporting member in a position to engage said plates and drive the second frame in one direction upon rotation of the first frame in an opposite direction, and means for rotating the first frame.

9. An amusement device as defined in claim 3 characterized further to include a movie projector in the cabin 10 arranged to project a movie of heavenly bodies on the interior of the cabin and provide passengers in the cabin with a sensation of interplanetary space flight.

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